

538, 401

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
24 June 2004 (24.06.2004)

PCT

(10) International Publication Number  
**WO 2004/053553 A1**

(51) International Patent Classification<sup>7</sup>: **G02B 6/34** 2111 Bellechasse, Apt. 1, Montreal, Quebec H2G 1R1 (CA).

(21) International Application Number:  
**PCT/CA2003/001916**

(74) Agent: PRIMAK, George, J.; 13480 Huntington, Montreal, Quebec H8Z 1G2 (CA).

(22) International Filing Date: 9 December 2003 (09.12.2003)

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
2,414,023 12 December 2002 (12.12.2002) CA

(84) Designated States (*regional*): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (*for all designated States except US*): ITF TECHNOLOGIES OPTIQUES INC.- [CA/CA]; ITF Optical Technologies Inc., 400 Montpellier Blvd., Montreal, Quebec H4N 2G7 (CA).

## Published:

— with international search report

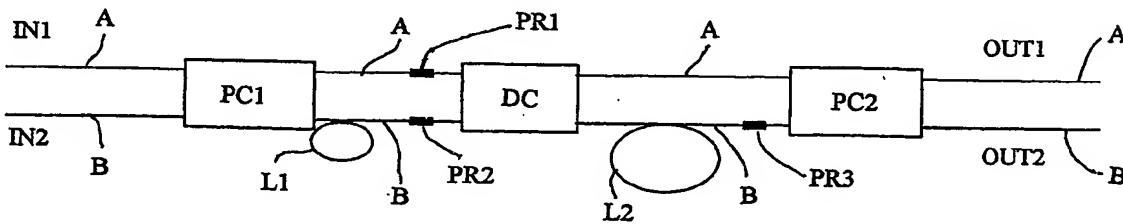
For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): AZAMI, Nawfel [MA/CA]; 745 Place Fortier, Apt.1505, Montreal, Quebec H4L 5A6 (CA). GONTIER, François [CA/CA]; 1780 Laird Blvd., Montreal, Quebec H3P 2T9 (CA). VILLENEUVE, Alain [CA/CA]; 194 Brookfield, Montreal, Quebec H3P 3J8 (CA). VILLENEUVE, Eric [CA/CA];

A1

(54) Title: ALL-FIBER LINEAR DESIGN DEPOLIZER FOR ALL-STATES OF POLARIZATION



WO 2004/053553 A1

(57) Abstract: An all-fiber, all-states of polarization linear design depolarizer is provided. It is made of two polarization combiners (PC1,PC2) with a 2x2 directional coupler (DC) between them. The connections between the coupler (DC) and the two polarization combiners (PC1,PC2) have optical phase delays (L1,L2) and half wave polarization rotators (PR1,PR2,PR3) to make proper adjustments.